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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,830	11/19/2001	Willem Van Schaik	P 284105 P-0294.000-US	8828

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EXAMINER
NGUYEN, HUNG

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,830	VAN SCHAIK ET AL.	
	Examiner	Art Unit	
	Hung Henry V Nguyen	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 November 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,6,7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "M_1 and M_2" (see fig.1). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. There are two claims numbered as "claim 6" (see page 15, line 30 and page 16, line 1). Misnumbered claims 6-13 (on page 16 and 17) have been renumbered as claims 7-14 consecutively under rule R.126.

Double Patenting

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Claims 3 and 5 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 2 and 1 of copending Application No. 09/988,391 respectively. This

is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-2, 4, 6-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 09/988,391. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-2, 4, 6, 6-14 of the instant application are merely re-written versions of claims 1-8 of application 09/988,391 .

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Since, the subject matter claimed in the instant application is fully disclosed in the referenced copending application (09/988,391) and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: a lithographic projection apparatus and correspond method having "a radiation system to supply a projection beam of electromagnetic

radiation...of 250nm or less". " a support structure adapted to support...to a desired pattern", "a substrate table to hold a substrate", "a projection system...of the substrate", and "a gas supply".

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-5, 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al (U.S.Pat. 6,252,648) in view of Somekh (U.S.Pat. 6,394,109)

With respect to claims 1-5, 7-12, Hase et al (fig.1) teaches an exposure apparatus and method for cleaning the contaminants on the plural optical elements, comprising substantially all of the limitations of the instant claims such as: a light radiation system (6) for providing a projection beam of electromagnetic radiation having a wavelength of 250nm or less ; a support structure (inherent element of exposure apparatus) for supporting a reticle (3) which can be used to pattern the projection beam according to predetermined pattern; a substrate table (an inherent element of exposure apparatus) to hold a substrate (4); a projection lens (5) for projecting the patterned beam onto a target portion of the substrate; a gas supply (8a, 10a) constructed and arranged to supply a purge gas to a space in the exposure apparatus, the space containing an

optical component, wherein the purge gas comprises an amount of oxygen having a predetermined concentration (e.g., not greater than a few grams per $1m^3$) (see col.4, lines 45-49). Hase further teaches the purge gas comprising inert gas such as helium, argon, nitrogen or a mixture thereof (see claim 5 of Hase). Hase et al does not expressly teach the purge gas comprises an containing-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons, as well as alcohols, alkanones and ethers. Somekh teaches a method and apparatus for removing the contaminating object formed on the surface of components in a lithography exposure system using a cleaning system including an oxygen gas (216) to remove the contaminants. Somekh specifically teaches the oxygen "may be sourced from any oxygen containing compounds, such as O3, N2O, water vapor , doped oxygen compounds, alcohol compounds and other like compounds that are either neutral or ionized" (see col.5, lines 42-50) wherein the flow rate and pressure of the oxygen containing species are predetermined. In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Hase and Somekh to obtain the invention as claimed for the purpose of cleaning the optical components in the lithographic apparatus and improving the quality of the imaging system. It would have been obvious to a skilled artisan to provide the oxygen containing species from water, nitrogen oxide, alcohol compounds...or the like as suggested by Somekh into the exposure device of Hase for removing the contaminants at a highest level.

Further it has been held to be within the general skill of an artisan in the art to select a known gas/material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

As to claims 2, 5, 9, it is noted that since Hase teaches the purge gas comprises an amount of containing having a predetermined concentration (e.g., not greater than a few grams per $1m^3$) (see col.4, lines 45-49) and Somekh also teaches the flow rate and pressure of the oxygen containing species are predetermined. This provides a clear suggestion that it would have been obvious to a skilled artisan to determine the proper pressure and proper amount of containing in the purge gas in order to achieve a highly effective apparatus/method of cleaning optical elements in the exposure device/method. Also, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Claims 6, 8-9, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hase et al (U.S.Pat. 6,252,648) in view of Somekh (U.S.Pat. 6,394,109) and further in view of Akagawa et al (U.S.Pat. 6,288,769).

With respect to claims 6, 8-9, and 13-14, Hase as modified by Somekh, discloses substantially all basic features of the instant claims except for supplying an electromagnetic radiation having a wavelength of 250 nm or less for removing the contaminants. However, this technique is well known per se. For example, Akagawa teaches using ArF light or light beams having wavelength of 185 nm for removing the contaminating material formed on an optical unit (see col.9, lines 35-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the radiation source having wavelength of 185nm as taught by Akagawa into the exposure device and corresponding method of Hase as modified by Somekh for the purpose of cleaning optical components and improving the quality of the images to be printed.

Prior Art Made of Record

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miyaji (U.S.Pat. 5,559,584) teaches supplying an inert gas containing a small quantity of oxygen to the optical path of an exposure apparatus to avoid the decrease in the transmittance of light.

Engelsberg (U.S.Pat. 5,099,557) shows the use of high energy radiation using laser or a high energy lamp, for example, to clean and remove contamination of a lens surface.

Livshits et al (U.S.Pat. 6,350,391) shows a method for the removal of photoresist from semiconductor wafers using a reactive gas mixture having an effective amount of nitrogen oxide.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

Hung Henry V Nguyen
Primary Patent Examiner
Art Unit 2851

hvn
January 10, 2003